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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/434,736	11/02/1999	SANG YOUNG KIM	000939-07360	4305

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EXAMINER

PERT, EVAN T

ART UNIT	PAPER NUMBER
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2826

MAIL DATE	DELIVERY MODE
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06/06/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/434,736	Applicant(s) KIM ET AL.	
	Examiner EVAN PERT	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28, 30-39, 41-43, 45-70, 72-80 and 82-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-8, 10-13, 15, 17-18, 20, 22-25, 27, 41, 45-63, 65-66, 69-70, 72-80, and 82-88 is/are rejected.
- 7) ☒ Claim(s) 1-5, 9, 14, 16, 19, 21, 26, 28, 30-39, 42, 43, 64, 67 and 68 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 07/964,362.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The previously indicated allowability is withdrawn.

Specification

2. There is more than one reissue application filed for the reissue of Patent No. 5,683,938, this case being one of two reissue applications.

The specification is objected to for not including a statement cross-referencing the other reissue application. See MPEP 1451 II.

An acceptable cross-referencing statement in the specification would be:

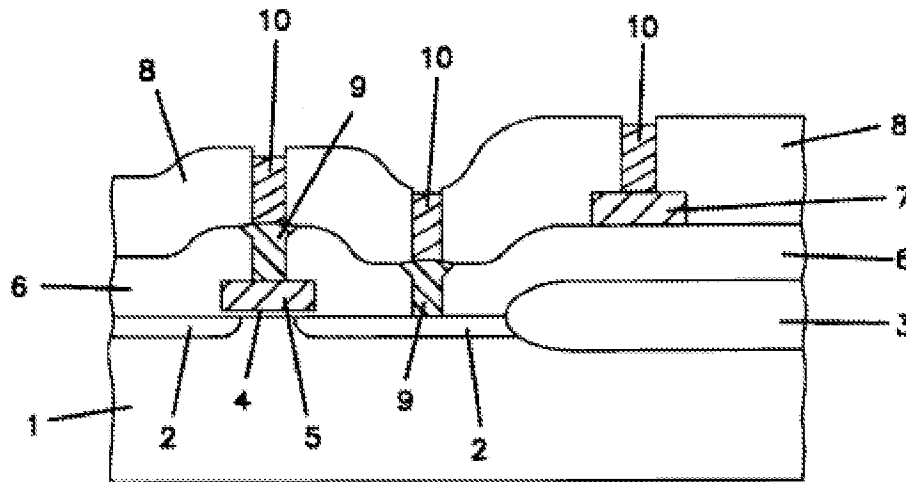
More than one reissue application has been filed for the reissue of Patent No. 5,683,938. The reissue applications are application numbers 09/434,736 (the present application), and 10/243,496, which is a continuation reissue of Patent 5,683,938.

Oath/Declaration

3. The reissue oath/declaration filed with this application is defective because the error which is relied upon to support the reissue application is not an error upon which a reissue can be based. See 37 CFR 1.175(a)(1) and MPEP § 1414. The supposed “error” is stated as follows:

“...the present invention equally applies to the deposition of other conductive layers, such as polysilicon. The failure to include claims depositing conductive layers is an error that the present reissue application corrects.”

Contrary to applicant's assertion, the claims of the original patent actually already do claim “depositing conductive layers (such as polysilicon),” because “conductive layer pattern” (7) and “gate electrode” (5) are made of “conductive” materials (other than “metal”), such as “polysilicon,” by the *written description* of the specification. However, only “metal,” and not the broader claimed “conductive material” is supported as being *within* (i.e. filling) contact holes:



WRITTEN DESCRIPTION (35 USC 112, 1st paragraph)

9, 10 = "metal" or "tungsten" (are the only materials filling contact holes)

5, 7 = "conductive" or "polysilicon" (but are not filling contact holes)

NEW MATTER UNDER 35 USC 251

9, 10 = "polysilicon" or non-metal "conductive" (filling contact holes)

Claims 6-8, 10-13, 15, 17-18, 20, 22-25, 27, 41, 45-63, 65-66, 69-70, 72-80, and 82-88 in this reissue application, directed to "conductive material filling contact holes," instead of "metal," are not supported by the *written description* of the application under 35 USC 112, 1st paragraph.

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Furthermore, claims 1-5, 9, 14, 16, 19, 21, 26, 28, 30-39, 42-43, 64, and 67-68, that is those claims directed to "metal filling contact holes," do not correct any identified error in the oath/declaration.

The specification, claims, amendments, arguments, and entire prosecution history of the original patent are directed specifically to "metal" and "tungsten" as the *only* material "filling" any "contact holes."

Polysilicon is not a metal, and the newly introduced broader term, "conductive material" introduces new matter as compared to the specifically described "metal" in "contact holes," clearly described as the invention of the original patent where problems with "metal filling contact holes" are addressed [col. 1, US 5,683,938].

An example of applicant's continued representation that "metal" is the only material of the invention contemplated for filling the contact holes, as a representative example of all of applicant's arguments in the prosecution history of the original patent, can be found at p. 4 of applicant's remarks filed September 19, 1994, where applicant argues,

There is no indication that [the prior art] recognizes the problems associated with depositing a metal layer in adjacent contact holes that have different depths, much less a solution to those problems.

Applicant's amendments to overcome prior art, also are directed solely to metal. For example, in the amendment filed January 2, 1997, the added limitation is that "the first metal layer" is grown over and extends slightly beyond the contact holes. Every material filling contact holes of the original invention are "metal." Just "metal." Only "metal."

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The problem statement of the invention is solely directed to "metal(s)." A broader description of "conductive" material, such as polysilicon, is referred to by the written description only for materials not filling contact holes.

Filling polysilicon in the contact holes simply was not contemplated or discussed in the original written description of the invention; only "metal" and "tungsten" (i.e. a specific metal, also called wolfram) are discussed as filling contact holes.

The error which is relied upon to support this reissue application is not an error upon which a reissue can be based because the correction attempts to capture new matter into the claims:

The only "conductive layer" (rather than "metal") referenced and claimed is a polysilicon "conductive layer pattern" and a polysilicon "gate electrode," materials NOT filling contact holes (i.e. gate 5 and line 7).

Applicant is not entitled to claim "conductive material" in place of "metal" for "filling contact holes" in this reissue application because there is no support in the original disclosure of the invention for the broader concept of "conductive material filling contact holes" that includes "polysilicon filling contact holes," and "non-metals filling contact holes," wherein the originally disclosed and claimed invention is narrower in scope by the written description, not just the claims, and is clearly only about solving the problems of "metal filling contact holes" [see, for example, col. 1, US 5,683,938].

New Matter

4. Claims 6-8, 10-13, 15, 17-18, 20, 22-25, 27, 41, 45-63, 65-66, 69-70, 72-80, and 82-88 are rejected under 35 U.S.C. 251 as being based upon new matter added to the patent for which reissue is sought. The added material which is not supported by the prior patent is as follows:

“Conductive material” filling “contact holes” is a broader description that constitutes new matter by including more materials than the “metal” materials supported by the written description; the conductive materials not supported by the written description are non-metals such as polysilicon, which are not supported by the original disclosure under 35 USC 112, 1st paragraph.

Recapture

5. Claims 6-8, 10-13, 15, 17-18, 20, 22-25, 27, 41, 45-63, 65-66, 69-70, 72-80, and 82-88 are rejected under 35 U.S.C. 251 as being an improper recapture of broadened claimed subject matter surrendered in the application for the patent upon which the present reissue is based. See *Pannu v. Storz Instruments Inc.*, 258 F.3d 1366, 59 USPQ2d 1597 (Fed. Cir. 2001); *Hester Industries, Inc. v. Stein, Inc.*, 142 F.3d 1472, 46 USPQ2d 1641 (Fed. Cir. 1998); *In re Clement*, 131 F.3d 1464, 45 USPQ2d 1161 (Fed. Cir. 1997); *Ball Corp. v. United States*, 729 F.2d 1429, 1436, 221 USPQ 289, 295 (Fed. Cir. 1984). A broadening aspect is present in the reissue which was not present in the application for patent. The record of the application for the patent shows that the broadening aspect (in the reissue) relates to claim subject matter that applicant previously surrendered during the prosecution of the application.

Accordingly, the narrow scope of the claims in the patent was not an error within the meaning of 35 U.S.C. 251, and the broader scope of claim subject matter surrendered in the application for the patent cannot be recaptured by the filing of the present reissue application.

The phrase “conductive material” in place of “metal” for filling “contact holes” was surrendered, for example, in an amendment to overcome prior art, including “metal” in all limitations added for filling “contact holes.” Furthermore, all arguments of record and problem statements of the disclosure are specifically directed to “metal” when “filling contact holes.”

The description of metal filling contact holes in the patent contrasts with conductive polysilicon not filling contact holes in the patent, wherein the contrast is further evidence that polysilicon was not contemplated for filling contact holes in the original invention. The original claims already inherently include polysilicon for “gate electrode” and “conductive layer pattern” (i.e. not filling contact holes), so there is no error in failing to claim “polysilicon” that makes the patent in operative.

There is no evidence whatsoever that applicant intended to gain or retain a right to claim a broader class of “conductive material for filling contact holes” in the invention as compared to the specific problems solved and claimed for “metal filling contact holes.”

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 6-8, 10-13, 15, 17-18, 20, 22-25, 27, 41, 45-63, 65-66, 69-70, 72-80, and 82-88 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Claims 6-8, 10-13, 15, 17-18, 20, 22-25, 27, 41, 45-63, 65-66, 69-70, 72-80, and 82-88 contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The subject matter of non-metals in or filling contact holes is not supported by the written description. In the written description of the invention, only "metal," not "conductive material" is suggested for filling contact holes. The written description and original patent already discloses and claims "polysilicon" by way of the claimed "conductive layer pattern" and "gate electrode."

The fact that the "conductive layer pattern" (7 in the drawings) and "gate electrode" (5 in the drawings) are disclosed as "polysilicon," but the material filling contact holes (9, 10 in the drawings) is only disclosed as "metal" or "tungsten" (a specific metal), is further evidence anything other than "metal" filling contacts holes constitutes new matter.

Claim Objections

7. Claims 1-5, 9, 14, 16, 19, 21, 26, 28, 30-39, 42-43, 64, and 67-68 are objected to for not correcting any error identified by the oath/declaration.

Other Rejections

8. Other rejections using prior art are deferred pending resolution of the critical rejections and objections set forth in this office action.

Notably, the amendment to place original claims 1-5 in condition for allowance on February 13, 2007, merely required the contact holes to "have a tapered upper portion." This limitation, however, is an inherent feature of contact holes formed by anisotropic etching [Fig. 3-16a], as explained by the Wolf reference, "faceting occurs during anisotropic etching of contact openings."

Since the Gutierrez reference was overcome by the contact holes "having a tapered upper portion" and the contact holes in Gutierrez are "anisotropically etched," the allowance of claims 1-5 in this reissue application would require overcoming at least a prior art rejection relying on Wolf to show inherency of the tapered upper portion.

However, rejections using prior art are deferred at this time, pending resolution of the critical defects set forth in this office action.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EVAN PERT whose telephone number is (571)272-1969. The examiner can normally be reached on M-F (7:30AM-3:30 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on 571-272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ETP
May 29, 2008

/Evan Pert/
Primary Examiner, Art Unit 2826